as his excellency is the president there is little danger of his title being disputed.

Oruro is a mining town of 12,000 people. It makes you think of the larger villages of the valley of the Nile, save that there is no green surrounding it. It lies at the edge of bare gray hills in a desert. The streets are narrow. Most of them are unpaced and most of the house are of one story, thatched with straw. The town water works are mules who carry barrels of this precious fluid about on their backs and a large part of the population is made up of Quichua (Keech-wa) Indians. The most of the miners are half-breeds or Cholos, and as mining is the chief industry you see Cholos everywhere. There are also saloons everywhere. You know them by the little red tags which are stuck in balls over their doors. Just above the city on the mountain is the Chilean mine called Sacavon La Virgen. This is a famous old silver mine which has produced and is still producing vast quantities of silver. It has a capital of a million, and its stock is worth, I am told, 250 per cent above par. I visited it today. The mine is managed by Englishmen, but the work in it is all done by Bolivians. The miners labor half naked in the tunnels, as the mine is like an oven and the means of ventilation are poor. They take out only the best of the ore, and this, when brought to the surface, is broken into little pieces by Indian women, who sort out the best and throw the poorer pieces away. There were several hundred of these women at work at the mouth of the mine at the time of my visit. They qsuat on the ground and break the ore with hammers. Nearly every one of them was chewing coco, and I could see the fat quids sticking out of the cheeks of them. They work from daylight until dark for what would be about 17 cents of our money per day. The miners receive about twice this amount. In all 700 hands are employed, and this notwithstanding that a great deal of the work is done by machinery. One of the odd things about the mines is the fuel. This mine is 600 miles from the coast and 7,500 miles from the coal mines of Australia. The result is that the freight on coal makes it cost 6.50 per hundred weight, which is too expensive for use. Its place is taken by the fuel of the country, which is llama manure. This is brought in on the backs of llamas in bags. It costs about 60 cents for 100 pounds, and 7,600 pounds are required to run a forty horse-power engine for twenty-four hours. In company with one of the managers of the mine I went into the llama fuel pit, where 150,000 pounds of this stuff was stored. I did not smell at all bad, and through gravel.
walking over it was like tramping

The silver mines of Peru are almost as rich as those of Bolivia. There are, I have been told, about 2,000 different silver mines in that country, but owing to the low price of silver only a very few are now being worked. At Hualgayoc, in northern Peru, just over the western range of the Andes, there are four hundred silver mines within forty square leagues. Some of these mines produce as much as 300 ounces of silver to the ton, and the waste dumps will average, I am told, at least 16 ounces per ton. The ore is mined by Indians, who are paid about forty cents of our money per day. Their only tools are hammers, drills and rawhide sacks. They have neither picks nor shovels, and they burrow through the mountain like rats, taking out only the richest parts of the ore. They work almost naked, wearing only breech cloths about their waists, and as they work they utter weird and melancholy cries. All of the ore is carried out upon their backs. An Indian will carry 150 pounds. He will climb up ladders or notched sticks with such a load of ore upon his back and will go off on a dog trot with his burden. The ore is broken up into small pieces with hammers by children. It is then ground by circular stones being rolled about over it and then mixed with quicksilver after the patio process by driving mules around through it. These Hualgayoc mines are the ones which Humboldt says produced $33,000,000 worth of silver in thirty years. Much of the ore is now reduced to a sulphide and taken on mules to the coast and shipped to Europe for further treatment.

The same sort of work goes on at the famous Cerro de Pasco mines in the Andes above Lima, and, in fact, in nearly all of the silver regions of Bolivia and Peru. The Cerro de Pasco mines which are now in active operation number about 300, and there are 225 silver mines being worked at Yauli, on the Oroya railroad, about sixty miles away. Cerro de Pasco has always been thought to be the crater of an extinct volcano. It is situated about 14,000 feet above the sea, in one of the bleakest parts of the Andes. The town, which is now only on of about 5,000 people, lies in a basin surrounded by barren rocks. The deposits consist ot a great body of low-grade silver ore, over a mile and a half long by three-quarters of a mile wide. This has been worked down to a depth of about 250 feet, and numerous tunnels have been run in at that level to drain the mines. The great trouble is the water, and further mining can only be done by lower tunnels or heavy pumps. Henry Meiggs, the American engineer who constructed so many great works in Peru years ago, began a tunnel 150 feet below the present levels. The work was stopp d, however, at a distance of 900 feet from the surface, and at present nothing is being done. The tunnel will need to be extended from 900 to 1,800 feet further before ore is struck, and at the present low price of silver there is little prospect of this being attempted. Within a short time there has been something of a revival of the silver industry at Cerro de Pasco, owing to the copper ores lying under the low-grade silver ores, and the camp today is more one of copper than of silver. In the past the Cerro de Pasco mines have produced enormous quantities. Between 1630 and 1824 27,200 tons of pure silver were taken out of them, and the dumps of the mines, if they were scientifically worked, would bring a fortune. Twenty years ago Cerro de Pasco was turning out more than a million ounces of silver a year, and I am told that $60,000,000 worth of silver was taken out from under the ground on which the town of Cerro de Pasco now stands. These mines were discovered in the seventeenth century by an Indian. He camped out one night near the site Cerro de Pasco. Before going to sleep he built a fire upon some stones and awoke to find that his stones had melted and that a lump of silver slag had taken their place.

The biggest Yankee enterprise I have found in a mining way south of the equator is the smelting works of the Backus and Johnston company at Casapalca, Peru. This company is composed of Mr. J. Backus, a Brooklyn man, who is a nephew of the famous engineer Meiggs; Mr. J. H. Johnston of Bath, who came out here to work on the Meiggs railway and Capt. H. Guyer ,the owner of the Guyer Springs in Idaho, who is well known as a practical miner and mining engineer in our estern states. Backus and Johnston made a nice thing in establishing a brewery at Lima. They imported machinery for it from the United States and made money from the start. They sold the brewery some years ago to an English syndicate for $500,000 in gold. They have since been dealing in mines, and have put a great deal of money into their smelter. This is situated at Casapalca, on the Oroya railroad, away up in the Andes, ninety-five miles from the sea and 13,606 feet above it. The works run night and day, and I am told that they smelt to as good advantage as any establishment of the United States. The superintendent of the smelter is Mr. Frank Pierce, the son of Richard R. Pierce of the well-known Argo Smelting Works of Denver, and the smelting is done after much the same plan as that of the Argo. The company also have extensive silver mines at Casapalca. Capt. Guyer told me that the profits of the mines and works during the past year were more than $100,000, while the profits of the year preceding were even greater. About 500 men are employed,and the company controls the town Casapalca, which has grown up about the works. The smelter was originally started on a small scale to work over the dumps of the Ryo and other silver mines, of which there were something like 20,000 tons at this point. Then the company bought the Ryo copper and silver mine, and took a ten years' lease of the Carlos Francisco mine. Both of these mines had been worked from the surface for many years, Backus and Johnston decided to run a tunnel into the mountain and strike the ore body 1,700 feet below the upper workings. They did this, but failed to find pay dirt in the Ryo. A few monhs ago the tunnel was pushed on into the Francisco vein, and here a very rich body of ore was struck. I was shown specimens of the ore at Casapalca. The vein is seven feet wide, and twenty inches of it assays ,I am told, 150 ounces of silver to the ton. The tunnel is 3,000 feet below the outcroppings of the ore, and it is beleved that some rich pockets will be struck in working upward. This mine is worked after the approved American fashion. The tunnels have railroad tracks in them and the ore when brought to the surface is sent to the mills on a gravity tramway.

In addition to their own ore the Backus and Johnston company do a large business in smelting for the mines of Yauli and of Cerro de Pasco. The ore is carried from forty to seventy-five miles to the smelters on the backs of llamas. Each of the llams carries about 100 pounds, and they are driven here by the Indians in herds of from twenty to fifty. It is not an uncommon thing for 1,200 llamas to be unloaded in a day at Casapaca, and the yards of the smelter were full of these curious beasts during the whole of my stay. It takes the llamas ten days to make the round trip from Cerro de Pasco and about two days from Yauli. It is one of the curious features of freighting in the Andes that although Yauli is on the line of the railroad, just twenty-five miles from the smelting works, the ore can be brought that distance more cheaply on llama back than on the cars. In the same connection eggs and vegetabes are sometimes carried down the mountains to the markets of the lowlands on llamas, although the railroads almost parallels the route of the llama trail.

There is another larger smelter at the end of this railroad, at Antofagasta, on the sea. This smelter belongs to the famous Huanchaca Silver Mining company, which produces the greater part of the silver of Bolivia today. The smelting works are of vast extent, comparing in size with any in the United States. They have cost about two and one-half million American dollars, and smelt the ores of this company exclusively. It is a magnificent establishment and is now well managed.